



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Frank Y.H. Fan

Attorney Docket No.: KLA1P118

Patent: 7,132,301 B1

Issued: November 7, 2006

Title: METHOD AND APPARATUS FOR
REVIEWING VOLTAGE CONTRAST DEFECTS
IN SEMICONDUCTOR WAFERS

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the U.S. Postal Service with sufficient postage as first-class mail on June 11, 2007 in an envelope addressed to the Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450.

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Aurelia M. Sanchez

**REQUEST FOR CERTIFICATE OF CORRECTION
OF OFFICE MISTAKE
(35 U.S.C. §254, 37 CFR §1.322)**

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
Attn: Certificate of Correction

**Certificate
JUN 18 2007
of Correction**

Dear Sir:

Attached is Form PTO-1050 (Certificate of Correction) at least one copy of which is suitable for printing. The errors together with the exact page and line number where the errors are shown correctly in the application file are as follows:

CLAIMS:

1. In line 9 of claim 1 (column 9, line 11) add --causes-- after "beam". This appears correctly in Amendment B2 as filed on February 15, 2006, on page 2, paragraph 2, line 7.
2. In line 4 of claim 9 (column 10, line 10) change "seen" to --specimen--. This appears correctly in Amendment B2 as filed on February 15, 2006, on page 3, paragraph 4, line 3.
3. In line 5 of claim 9 (column 10, line 11) change "level tin" to --level in--. This appears correctly in Amendment B2 as filed on February 15, 2006, on page 3, paragraph 4, line 4.

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Patentee hereby requests expedited issuance of the Certificate of Correction because the error lies with the Office and because the error is clearly disclosed in the records of the Office. As required for expedited issuance, enclosed is documentation that unequivocally supports the patentee's assertion without needing reference to the patent file wrapper.

It is noted that the above-identified errors were printing errors that apparently occurred during the printing process. Accordingly, it is believed that no fees are due in connection with the filing of this Request for Certificate of Correction. However, if it is determined that any fees are due, the Commissioner is hereby authorized to charge such fees to Deposit Account 500388 (Order No. KLA1P118).

Respectfully submitted,
BEYER WEAVER LLP

A handwritten signature in black ink, appearing to read 'Frank T. Kalinski, II.', is written over a horizontal line.

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JUN 18 2007

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for reviewing voltage contrast defects on a semiconductor specimen comprising:

turning on an electron flood gun;

applying a surface charge to a semiconductor specimen by using the flood gun;

turning off the electron flood gun;

using an electron beam generator to direct an electron beam upon the surface of the specimen, wherein the electron beam causes secondary electrons to emanate from the specimen, wherein the electron beam generator produces an electron beam having a current level approximately within the range of 10-50 pico Amps;

detecting the secondary electrons in order to locate voltage contrast defects; and

reviewing the located voltage contrast defects.

2. (original) A method as recited in claim 1 wherein the surface charge is applied to the entire surface of the specimen.

3. (original) A method as recited in claim 1 wherein the surface has a negative or positive charge.

4. (original) A method as recited in claim 1 wherein the operations of claim 1 are repeated such that during each iteration, voltage contrast defects in a new sub-region are detected and reviewed.

5. (original) A method as recited in claim 1 further comprising:

reapplying a surface charge to the semiconductor specimen using the flood gun when the charge on the specimen is determined to be insufficient for voltage contrast effects to manifest.

6. (original) A method as recited in claim 1 further comprising:

positioning a specimen charge electrode above the semiconductor specimen; and

while the flood gun is turned on, biasing the specimen charge electrode at a certain voltage level in order to obtain a desired charge amount on the semiconductor specimen.

7. (original) A method as recited in claim 6 wherein the specimen charge electrode is negatively biased whereby a negative charge is applied to the semiconductor specimen.

8. (original) A method as recited in claim 6 wherein the specimen charge electrode is positively biased whereby a positive charge is applied to the semiconductor specimen.

9. (original) A method as recited in claim 1 further comprising:
supporting the semiconductor specimen with a specimen stage, wherein the semiconductor specimen and the specimen stage are in electrical contact; and
biasing the specimen stage at a certain voltage level in order to obtain a desired surface charge amount on the semiconductor specimen.

10. (original) A method as recited in claim 9 wherein the specimen stage is positively biased whereby a negative charge is applied to the semiconductor specimen.

11. (original) A method as recited in claim 9 wherein the specimen stage is negatively biased whereby a positive charge is applied to the semiconductor specimen.

12. (original) A method as recited in claim 1 wherein the operation of reviewing the located voltage contrast defect involves energy dispersive x-ray analysis techniques or cross-sectioning tools.

13. (cancelled)

14. (original) A method as recited in claim 13 further comprising:
detecting voltage contrast defects within features on the semiconductor specimen that have high aspect ratios.

15. (original) A method as recited in claim 1 wherein a scanning electron microscope inspection system is used for review.

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(Also Form PT-1050)

**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**

PATENT NO. : 7,132,301 B1

Page 1 of 1

DATED : November 7, 2006

INVENTOR(S) : Frank Y.H. Fan

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Claims:

In line 9 of claim 1 (column 9, line 11) add --causes-- after "beam".

In line 4 of claim 9 (column 10, line 10) change "seen" to --specimen--.

In line 5 of claim 9 (column 10, line 11) change "level tin" to --level in--.

MAILING ADDRESS OF SENDER:

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